

What is claimed is:

- 1) A circuit, comprising:
 - a first digital to analog converter ("DAC") to generate
5 a first current;
 - a first transistor, coupled to the first DAC, to generate
a first biasing current responsive to the first current; and,
 - a second DAC, coupled to the first transistor, to
generate a first control current responsive to the first biasing
10 current.
- 2) The circuit of claim 1, wherein the first DAC is a binary weighted
control DAC.
- 15 3) The circuit of claim 2, wherein the second DAC is a binary weighted
control DAC.
- 4) The circuit of claim 3, wherein binary weighted values of the second
DACP is obtained in response to a calibration signal generated by a
20 controller.
- 5) The circuit of claim 3, wherein the first DAC is an M-bit DAC and
the second DAC is an N-bit DAC, wherein M is less than N.
- 25 6) The circuit of claim 1, wherein the second DAC is a
current source.
- 7) The circuit of claim 1, wherein the second DAC is coupled to a pin.
- 30 8) The circuit of claim 1, wherein the first transistor is a p-type
transistor.

9) The circuit of claim 1, wherein the binary weighted values are stored in a register.

10) The circuit of claim 1, wherein the circuit is in a memory device.

5

11) The circuit of claim 1, further comprising:

a second transistor, coupled to the first DAC, to generate a second biasing current responsive to the first current; and,

a third DAC, coupled to the second transistor, to generate a second control current responsive to the second biasing current.

10

12) A current distribution circuit in a memory device, comprising:

a first M-bit digital-to-analog converter ("DAC") to generate a first current;

a first transistor, coupled to the first M-bit DAC, to generate a first biasing current responsive to the first current;

a second N-bit DAC, coupled to the first transistor, to generate a first control current responsive to the first biasing current;

15

a second transistor, coupled to the first M-bit DAC, generating a second biasing current responsive to the first current; and,

a third N-bit DAC, coupled to the second transistor, to generate a second control current responsive to the second biasing current.

20

25

13) The circuit of claim 12, wherein M is less than N.

14) The circuit of claim 12, wherein the memory device is a dynamic random access memory ("DRAM") device.

30

15) The circuit of claim 12, wherein the first and the second transistors are p-type transistors.

16) The circuit of claim 12, wherein the second DAC is coupled to a first pin and the third DAC is coupled to a second pin.

5

17) The circuit of claim 12, wherein N values for the second and third N-bit DAC are obtained in response to a calibration signal generated by a controller.

10

18) An apparatus for calibrating an output driver, comprising:
a controller to generate a calibration signal; and,
a device, coupled to the controller, to generate an output signal in response to the calibration signal, wherein the device includes a circuit having:
a first M-bit digital-to-analog converter (“DAC”) to generate a first current;
a first transistor, coupled to the first M-bit DAC, to generate a first biasing current responsive to the first current;
a second N-bit DAC, coupled to the first transistor, to generate a first control current responsive to the first biasing current;
a second transistor, coupled to the first M-bit DAC, generating a second biasing current responsive to the first current; and,
20
a third N-bit DAC, coupled to the second transistor, to generate a second control current responsive to the second biasing current;

15

25

a third N-bit DAC, coupled to the second transistor, to generate a second control current responsive to the second biasing current.

30

19) The apparatus of claim 18, wherein M is less than N.

20) The apparatus of claim 18, wherein the device is a Rambus dynamic random access memory (“RDRAM”) device.

5 21) The apparatus of claim 18, wherein the controller is a memory controller.

22) The apparatus of claim 18, wherein the first and the second transistors are p-type transistors.

10 23) The apparatus of claim 12, wherein the second DAC is coupled to a first pin and the third DAC is coupled to a second pin, and wherein the first and second pins are coupled to the controller.

15 24) A method for calibrating an output driver, comprising the steps of:
providing m values to a M-bit DAC to generate a first current;
providing a first biasing current, in response to the first current, to a N-bit DAC coupled to the output driver;
obtaining the m most significant bit values of the N-bit DAC;
applying the m most significant bits to the M-bit DAC to generate a second current;
providing a second biasing current, in response to the second current, to the N-bit DAC; and,
20 obtaining a control current for the output driver in response to the second biasing current.

25

30